

2nd LOFT small break test conducted

The director called it the most difficult test undertaken at LOFT so far.

The manager of the experimental program said the eight-hour simulated accident would stress machines and operators.

But in the hall outside the observation room, employees sipped coffee, munched donuts and talked — not about the test or its outcome. That may illustrate a difference between insiders on the nuclear safety question and outsiders — insiders trust the technology. Computer codes had told them how systems would behave under duress — their training made them familiar with back-up safety systems.

The February 6 test at INEL's Loss of Fluid Test facility was planned to test a small break in the reactor's cooling system. The Nuclear

Regulatory Commission shifted emphasis in its safety research after the Three Mile Island accident. Previously, attention focused on large pipe breaks. But TMI showed that small break safety tests were needed, too.

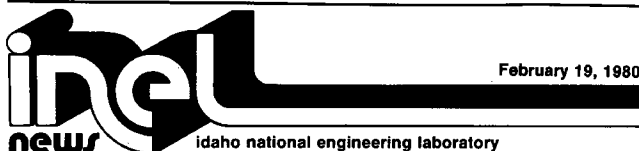
"We realized accidents could start out relatively benign, but operators, through taking wrong action, could defeat the safety systems," Tom Murely, director of the NRC's reactor safety research division said. "For this test, action was to be required both by automatic safety systems and by operators."

Three buses transported visitors — reactor equipment vendors, Nuclear Regulatory Commission officials, local officials, media and overseas guests — to LOFT's north end location. While the visitors were registering, finding seats

and helping themselves to coffee, the public address system announced the countdown. Nick Kaufman, director, briefed the visitors, explaining the test's length gave the equipment a greater exposure to malfunction. Larry Leach, LOFT experimental program manager, added specifics so guests would know what to watch.

At 8:15 p.m., a valve was open simulating a small break in the cooling loop. Seconds later, the reactor scrambled (shut down) automatically to stop the nuclear reaction. A line on a pressure

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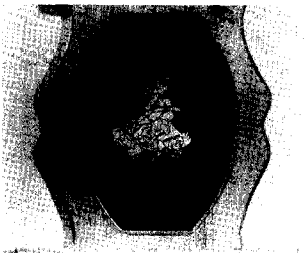


Artist mirrors talents

Mirrors do more than reflect an image as Lavern Broncho, a hot-cell operator at Argonne-West, discovered at a Pocatello art show three years ago.



HOT-CELL operator and artist, Lavern Broncho, examines fuel elements at the ANL-W Hot Fuel Examination Facility-North. (ANL-W photo by Denis Jensen)



PRIZE-WINNING mirror designed by Lavern Broncho, ANL-W hot-cell operator. (ANL-W photo by Denis Jensen)

On display was an ordinary mirror transformed into an art object by the addition of an intricately etched design. Broncho studied the process and since then has created several of his own compositions. His considerable artistic talent was recognized at the 1977 Indian Festival where he won 2nd Overall Prize for a beautifully executed etching.

The technique requires a steady hand in addition to an artistic bent. A sheet of white contact is smoothed over the mirror, the composition pencilled in, and the lines burned with a stylus. A sharp knife removes the burned portions of the drawing. The entire piece is then sandblasted and the contact cut away from the motif. The result is a dramatic silhouette effect, the shimmering mirror and stark white contact in brilliant contrast to the pebbled texture of the sandblasted surfaces.

Broncho is unassuming about his talent but admits that he is a "born doodler" and loves to draw. Cartooning is his favorite art form, and more than a few of his bright and witty cartoons have called attention to Argonne-West special events.

Broncho has been with Argonne-West since 1971. Not surprisingly, he has the manual dexterity needed to remotely maneuver tools like cutters and tweezers while examining fuel elements in-cell for the Hot Fuel Examination Facility-North. This work is being done behind 5-ft-thick glass on highly radioactive materials as part of the Liquid Metal Fast Breeder Reactor Program.

Questionnaire coming

Each year the DOE Idaho Operations Office requests government and contractor employees to complete a personnel statistics questionnaire relating to the Idaho Falls-INEL work force.

The resulting data is compiled and used in planning INEL services, and answering inquiries received from both civic organizations and communities adjacent to the INEL and other government agencies.

In order to tabulate these statistics the questionnaires will be sent to all Idaho Falls and INEL employees early in March. It is essential that employees fill out the questionnaires completely and accurately since all incomplete questionnaires are automatically rejected by the computer.

The cooperation of employees and supervisors is appreciated.



Three hands would sometimes help LOFT personnel.



Tom Pointer keeps tabs on the experiment.

LOFT test

(continued from page 1)

graph told viewers that coolant was escaping faster than a computer code had predicted. Observers speculated why, and theories are diverse. But everyone agreed that days of analysis would be needed to find the precise answer.

During the first hour, no action from the operators was required. Built-in safety systems took over. After that, operators began adjusting controls to cool down the plant.

Officials opened the access tunnel for visitors to leave after the first two hours, "the most in-

teresting to observe," according to Jim Solecki, DOE-ID's chief of LOFT research. Most did leave but a few stayed on for an hour or two more.

A week after the test, personnel had a chance to look over data and analyze whether the test met its objective.

"We're very satisfied," Leach said. "Analysis will go on for months and help us learn a lot about this type of small break accident, but the basic overall behavior of the systems went as expected."

Leach says LOFT experts were especially pleased that the part of the test involving the operators went exactly as planned. One issue

raised after TMI was training for operators.

LOFT officials plan more small break tests. The February one was the second in a series of six. Cost for the program is \$40 million a year and the NRC predicts LOFT's safety program will total \$500 million over its lifetime.

The 50 megawatt thermal reactor is the largest in the NRC's research program to study emergency core cooling systems for light water-cooled reactors in the event of a pipe-break accident. Data from the LOFT experiments are being used to help predict the performance of cooling systems in large, commercial reactors and to aid the NRC in licensing reviews.



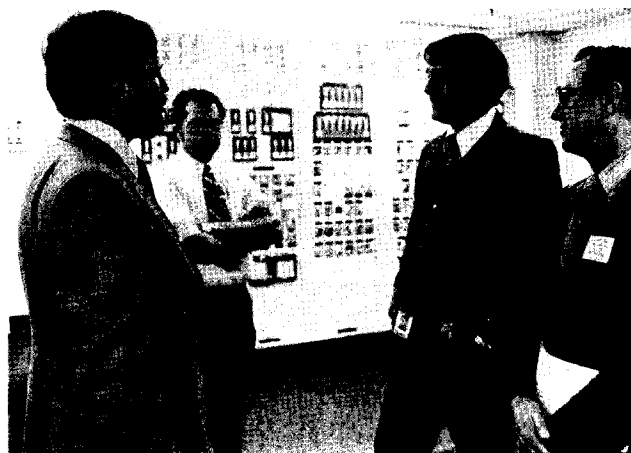
Computers make the job easier.



They were ready in the control room.



Visitors to the test were registered.



A top-level conference.



2 A study in concentration.



Checking the figures once more.



Intent on obtaining information.